

Reliability and Validity of the Italian Translation of the UPPS-P Impulsive Behavior Scale in
a Sample of Consecutively Admitted Psychotherapy Patients

Andrea Fossati ^a, Antonella Somma ^a, Kenny A. Karyadi ^b, Melissa A. Cyders ^b, Serena
Borrioni ^c

a: LUMSA University, Rome, Italy, and San Raffaele Hospital, Milan, Italy

b: Indiana University-Purdue University Indianapolis, Indianapolis, IN, U.S.A.

c: Vita-Salute San Raffaele University, Milano, Italy, and San Raffaele Hospital, Milan, Italy

Correspondence concerning this manuscript should be sent to Serena Borrioni,
Servizio di Psicologia Clinica e Psicoterapia, Ospedale San Raffaele, via Stamira d'Ancona,
20, Milano Italy; telephone number: +39 0226433241; e-mail address: borrioni.serena@hsr.it

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Abstract

The present study examined the reliability and validity of the Italian translation of the UPPS-P Impulsive Behavior Scale (UPPS-P) in a clinical sample of 268 consecutively admitted psychotherapy patients (43.3% male; mean age = 40.48 ($SD = 12.52$); 38.8% inpatient). The Italian UPPS-P replicated the internal consistency coefficients of the original UPPS-P (0.84 to 0.92 across the five subscales). Moreover, confirmatory factor analyses evidenced an adequate fit for the a-priori five-factor model of the scale (WLSMV CFA $\chi^2(1642) = 2833.06$, $p < .001$; RMSEA = 0.052, 95% confidence interval = 0.049 to 0.055, $p > .10$; CFI=.90; TLI=.90.). Furthermore, the UPPS-P scales were significantly related to the Barratt Impulsiveness Scale-11 total score ($r_s = 0.23$ to 0.60 across the five scales). Finally, the five UPPS-P scales showed distinct associations with domain scores and interview-based dimensional scores of personality disorders. Collectively, these findings suggest that the Italian version of the UPPS-P can be considered a valid and reliable alternative to the original UPPS-P and can be a useful diagnostic tool in a clinical sample.

Keywords: Impulsive behaviors; Assessment; Personality Disorders; Personality.

1. Introduction

Impulsivity is the most frequently included diagnostic criterion in the *DSM-5* (Cyders et al., in press). Given its role in a number of psychiatric disorders, impulsivity has strong clinical relevance (Moeller et al., 2001). However, varying conceptualizations and measurements of impulsivity (see Evenden, 1999; Moeller et al., 2001) have resulted in the inconsistent use of the term impulsivity and have produced unreliable results regarding the link between impulsivity and clinical behaviors (Smith et al., 2007; Whiteside and Lynam, 2001).

In addressing these issues, Whiteside and Lynam (2001) proposed that impulsivity is comprised of five discrete psychological processes that differentially relate to clinical behaviors: (1) *sensation seeking*, defined as the tendency to seek out novel and thrilling experiences; (2) *lack of premeditation*, defined as the tendency to act without thinking; (3) *lack of perseverance*, defined as the inability to remain focused on a task; and (4) *negative and positive urgency*, defined as the tendency to act rashly in response to negative and positive mood, respectively (Cyders and Smith, 2007; Whiteside and Lynam, 2001). These separate traits account for different types and aspects of problematic behaviors (Coskunpinar et al., 2013; Dir et al., 2013; Fischer et al., 2008; Glenn and Klonsky, 2010; Smith et al., 2007). These traits are assessed using the UPPS-P Impulsive Behavior Scale (UPPS-P; Lynam et al., 2006), which has been translated into numerous languages (see Billieux et al., 2012; Verdejo-Garcia et al., 2010); however, an Italian version has yet to be developed and examined empirically.

As such, the goal of the present study was to examine the validity and reliability of an Italian version of the UPPS-P in a clinical sample. The present study examined multiple aspects of the Italian UPPS-P: (1) reliability; (2) convergent validity; (3) factor validity; and

(4) criterion-related validity, particularly in terms of the associations of separate UPPS-P traits with DSM-5 personality disorders and personality domains.

2. Method

2.1 Subjects

Data were collected as part of a larger study (Fossati et al., 2015), which has yet to report any UPPS-P data; as such, the current results represent a novel use of the data. Participants in the study were inpatients and outpatients admitted to the Clinical Psychology and Psychotherapy Unit of the San Raffaele Hospital of Milan, Italy, from January 2013 to September 2014. All participants were admitted to the unit on a strictly voluntary basis and received psychotherapy for interpersonal difficulties and/or problems with behaviors and emotional regulation. Potential participants were screened for the following exclusion criteria: (1) younger than 18 years of age; (2) IQ less than 80; (3) education level lower than elementary school; and (4) diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder, delusional disorder, or dementia or organic mental disorder according to *DSM-5* diagnostic criteria.

The final sample comprised of 268 participants (mean age = 40.48 ($SD = 12.52$); 56.7% female; 38.8% inpatients and 61.2% outpatients; 52.6% received at least one DSM-5 psychiatric disorder diagnosis). Diagnoses of psychiatric disorders were made by the clinicians who were involved in the participant's treatment or by trained clinical psychologists during initial assessment interviews. Italian versions of the following measures were administered to participants: (1) the UPPS-P Impulsive Behavioral Scale; (2) Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders, Version 2.0 (SCID-II; First et al., 1994); (3) the Barratt Impulsivity Scale-11 (BIS-11; Patton et al., 1995); and (4) the Personality Inventory for *DSM-5* (PID-5; Krueger et al., 2012). Three trained expert raters

scored self-report measures and were blind to SCID-II assessment results; raters administering the SCID-II were blind to all self-report profiles.

2.2. Measures

The BIS-11, the UPPS-P, the PID-5 and the SCID-II were translated into Italian by two of the authors. The adequacy of the Italian translations was controlled by English professional translators through back-translations.

2.2.1. Impulsivity

The UPPS-P (Lynam et al., 2006) is a 59-item self-report measure designed to assess five impulsivity-related traits: (1) negative urgency (NU; 12 items); (2) lack of premeditation (LoP; 11 items); (3) lack of perseverance (LoPer; 10 items); (4) sensation seeking (SS; 12 items); and (5) positive urgency (PU; 14 items). The UPPS-P has shown excellent internal consistency reliability and convergent validity (Cyders et al. 2007). Relatedly, the UPPS-P has also been shown to make unique contributions to different disorders (Coskunpinar et al., 2013).

The Barratt Impulsiveness Scale-11 (BIS-11, Patton et al., 1995) is a 30 item self-report questionnaire that measures three impulsivity subtypes: motor impulsivity, attention impulsivity, and non-planning impulsivity. The three subtype scores are added up to produce a total impulsivity score ($\alpha = .80$). The Italian version is similar to the English version (Fossati et al., 2001).

2.2.2. Personality

The Structured Clinical Interview for DSM-IV Axis II Personality Disorders, V. 2.0 (SCID-II; First et al., 1994), which is a 140-item semi-structured interview, provide both a categorical and dimensional (number of symptoms) assessment of DSM-IV Personality Disorders (PDs). The Italian translation of the SCID-II has been shown to be reliable and valid for clinical participants (Maffei et al., 1997). The SCID-II was preceded by a self-report

screening questionnaire (PQ), which has also been shown to be valid (Richman and Nelson-Gray, 1994). The SCID-II enables direct probing of PQ answers when clinically relevant (First et al., 1994). Only the SCID-II scores for the 10 PDs in the DSM-5 were considered in the present study.

According to SCID-II interview, 171 (63.8%) participants received at least one *DSM-5* PD diagnosis, with the most frequently diagnosed *DSM-5* PDs being Narcissistic PD ($n=56$, 20.9%), Not Otherwise Specified (Mixed) PD ($n=53$, 19.8%), and Borderline PD ($n=32$, 11.9%). In terms of overall personality pathology, participants in our sample showed on average 7.49 ($SD=4.77$) PD symptoms, with participants who did not received any SCID-II PD diagnosis demonstrating approximately three maladaptive personality traits ($M=2.55$, $SD=1.78$).

Using a pairwise interview design, the inter-rater reliability of SCID-II diagnoses was assessed on the first 150 (56.0%) consecutively admitted participants. The ICC value for the overall number of SCID-II criteria was .91, with ICC values for SCID-II PD dimensional counts ranging from .70 (Schizotypal PD) to .98 (BPD) and median ICC value being .92 (all $ps < .001$). Cohen κ coefficients were calculated for a limited number of PD diagnoses due to low base rate problems. Cohen κ values were .97 and .94 for BPD and NPD diagnoses, respectively (all $ps < .001$). Cohen κ values were .91 for any PD diagnosis and .85 for Mixed PD diagnosis (all $ps < .001$).

The Personality Inventory for DSM-5, which is a 220-item questionnaire designed to measure the proposed *DSM-5* traits, has 25 primary scales that load onto 5 higher order dimensions (PID-5; Krueger et al., 2012). The Italian translation of the PID-5 has been found to be reliable and valid for non-clinical participants (Fossati et al., 2013). After reverse scoring seventeen items, PID-5 items are summed to compose PID-5 trait scale scores and PID-5 trait scales are summed to generate PID-5 domain scale scores, with each PID-5 item

being scored on only one PID-5 trait scale and each PID-5 trait scale being scored on only one PID-5 domain scale. PID-5 domains were scored using the algorithm by Krueger and colleagues' (2012) algorithm for scoring PID-5 domains. Internal consistency coefficients ranged from .90 to .95 for these domains.

2.3 Data analysis

In order to examine the dimensions underlying the UPPS-P item polychoric correlation matrix, we used quasi-inferential parallel analysis (Buja and Eyuboglu, 1992) and Hull's method (Wilderjans et al, 2013). Following Booth and Huges' (2014) suggestions, we used both weighted least square mean and variance corrected (WLSMV) confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM; Marsh et al., 2014) to examine the a priori five-factor model of the UPPS-P items. In order to assess model fit, we calculated Root Mean Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) in addition to goodness-of-fit chi-square test.

Hierarchical multiple regression analyses were used to examine the associations of UPPS-P scale scores with the dimensionally assessed SCID-II PD diagnoses, controlling for participants' age and gender. Multicollinearity was tested by means of variance inflation factors (VIFs). Partial correlation analyses were used to examine the association of each UPPS-P scale score with: (1) "pure" score of each PID-5 domain scale, controlling for the overlap with the other PID-5 domain scales; and (2) "pure" scores of the individual facets of the PID-5 Disinhibition domain, respectively.

3. Results

3.1 Reliability and Demographic Differences

Reliability coefficients and descriptive statistics for the UPPS-P scales are listed in Table 1. The UPPS-P scales were on average moderately inter-correlated ($r_s = .14$ to $.63$), with the median inter-correlation being ($r = .40$). With the exception of the correlation

between SS and LoPer, all r coefficients for the UPPS-P scale inter-correlation were significant (all $ps < .001$), replicating previous work with the original version of the UPPS-P. Participants' age were negatively and weakly correlated only with NU, LoPer, and SS ($rs = -.16$ to $-.28$, all $ps < .01$). No UPPS-P traits differed in context of (1) inpatient status ($ts[266] = -.88$ to $.83$, all $ps > .40$), (2) being able to pay for treatment ($ts[266] = -1.95$ to 1.58 , all $ps > .05$), (3) presence of any axis I diagnosis, ($ts[266] = -1.45$ to 1.11 , all $ps > .10$), and (4) presence of any mood disorder diagnosis ($ts[266] = -.29$ to 1.48 , all $ps > .10$).

3.2. Factors and Dimensions

Dimensionality analyses of the polychoric correlation matrix of the UPPS-P items supported a five-factor model of the scale. The first seven eigenvalue of the UPPS-P item polychoric correlation matrix ranged from 15.26 to 1.45. The 95th percentile of the corresponding random eigenvalues, which were based on 1,000 random polychoric correlation matrices and obtained by randomly permuting the original data, ranged from 2.27 to 1.84. According to quasi-inferential parallel analysis, only the first five eigenvalues exceeded the 95th percentile of the distribution of the corresponding random eigenvalue and should be considered "significant." According to Hull method, which balances goodness-of-fit (CFI) with model complexity, scree test values were 0 for 0 dimension and 6 dimension models, and peaked at 3.37 for 5 dimension models—thus supporting a five-factor model of the UPPS-P items.

According to Hu and Bentler's (1999) standards, the a-priori five-factor model of the UPPS-P items showed an acceptable fit (WLSMV CFA $\chi^2(1642) = 2833.06$, $p < .001$, RMSEA = 0.052, 95% confidence interval = 0.049 to 0.055, close fit $p > .10$, CFI = .90, TLI = .90; see Table 2). Furthermore, we also fitted a hierarchical model in which PU and NU were facets of a second-order Urgency factor, and LoP and LoPer were facets of a Deficit in Conscientiousness second-order factor (Cyders and Smith, 2007). Although this model

showed acceptable fit (WLSMV CFA $\chi^2(1645)=2830.36, p<.001$, RMSEA=0.052, 95% confidence interval=0.049, 0.055, close fit $p>.10$, CFI=.90, TLI=.90), the DIFFTEST suggested that the hierarchical model fitted the first-order factor model significantly better (χ^2 for difference testing(3)=12.32, $p<.01$). Finally, results of WLSMV ESEM with oblique target rotation were highly consistent with CFA findings, with the five-factor WLSMV ESEM showing adequate goodness-of-fit indices ($\chi^2(1426)=1888.25, p<.001$, RMSEA=0.035, 95% confidence interval=0.030, 0.039, close fit $p>.90$, CFI=.96, TLI=.95). In particular, the most striking difference between the UPPS-P theoretical model of item assignment and the empirical factor loading matrix was the presence of a significant and substantial standardized factor loading of .45 for item 57 ($p<.001$) on the NU scale.

3.3 Validity

The associations of BIS-11 total impulsivity scale with UPPS-P scale scores ranged from .23 to .59 (all $ps<.001$), with pattern of associations remaining generally identical even when controlling for age and gender. Additionally, using multiple regression, the UPPS-P scales explained a substantial amount of variance in the BIS-11 total impulsivity score (adjusted $R^2 = .51, p<.001$), with VIF values for the UPPS-P scales ranging from 1.25 (SS) to 1.90 (NU).; however, only NU, LoP, and LoPer were significantly related to BIS-11 total score in multivariate analyses ($\beta s = .22$ to $.36$, all $ps<.001$).

All UPPS-P scales were significantly associated with the overall number of SCID-II PD symptoms ($r s = .23$ to $.40$, all $ps<.001$). Moreover, using multiple regression, the UPPS-P scales explained a moderate amount of variance in the overall number of SCID-II PD symptoms (adjusted $R^2 = .17, p<.001$), with VIF values for the UPPS-P scales ranging from 1.24 (SS) to 1.86 (NU); however, only NU remained significantly related with overall symptoms in multivariate analyses ($\beta=.25, ps<.001$). Similarly, the BIS-11 total score predicted a significant proportion of variance in the overall number of SCID-II PD symptoms

(adjusted $R^2 = .10$, $\beta = .33$, $ps < .001$). The correlations among dimensionally assessed SCID-II PD diagnoses and UPPS-P scales are listed in Table 3. For comparison, BIS-11 total score was significantly correlated with dimensionally assessed Dependent PD, Obsessive-Compulsive PD, Histrionic PD, and Borderline PD ($rs = -.28$ to $.38$, all $ps < .001$).

Hierarchical regression models were tested only when at least one UPPS-P scale showed a significant bivariate correlation with a dimensionally assessed SCID-II PD diagnosis. Thus, hierarchical regression models were evaluated only for DSM-5 Dependent PD, Obsessive-Compulsive PD, Histrionic PD, Narcissistic PD, Borderline PD, and Antisocial PD (see Table 4). Participants' gender was coded as a dummy variable (0=M, 1=F), such that positive beta coefficient indicates that female participants scored higher than male participants on the dependent variable. We found numerous significant associations (see Table 4): (1) LoP and LoPer with DPD; (2) PU with HPD; (3) NU with NPD; (4) NU and LoP with BPD; and (5) SS with ASPD (all $ps < .001$). There were no association was found between UPPS-P scales and OCPD.

The PID-5 domain scales showed moderately strong inter-correlations ($rs = .29$ to $.75$), with median correlation being $.55$ (all $ps < .001$). This demonstrates that partial correlations, which are listed in Table 5 along with descriptive information on PID-5, represent the relationship between each UPPS-P dimension and an estimate of the "pure" score of each PID-5 domain scale, controlling for the overlap with the other PID-5 domain scales. For comparison, the BIS-11 total score was not correlated with estimates of "pure" scores (i.e., partial correlation) of PID-5 Negative Affectivity, Detachment and Psychoticism (partial $rs = -.03$ to $.09$, all $ps > .15$); however, BIS-11 was negatively correlated with PID-5 Antagonism scale "pure" score (partial $r = -.25$, $p < .001$) and PID-5 Antagonism scale "pure" score (partial $r = -.48$, $p < .001$).

Table 6 presents partial and raw bivariate correlations between the UPPS-P scale scores and the estimates of the "pure" scores of the individual facets of the PID-5 Disinhibition domain, controlling for the overlap among the PID-5 Disinhibition facets), as well as PID-5 Disinhibition domain facets descriptive statistics. There were numerous significant associations: (1) NU with Distractibility, Distractibility, Impulsivity, and Irresponsibility pure scores; (2) LoP with Distractibility, Impulsivity, and Lack of Rigid Perfectionism; (3) LoPer with Distractibility, Lack of Rigid Perfectionism, and Irresponsibility pure scores; (4) PU with Impulsivity pure score; and (5) SS with Risk Taking pure score ($r_s = .??$ to $.??$, all $p_s < .001$). For comparison, the BIS-11 total score was not correlated with PID-5 Risk Taking and Irresponsibility pure scores (partial $r_s = -.01$ to $.04$, $p_s > .80$), but was associated with "pure" scores of PID-5 Distractibility, Impulsivity, and Lack of Rigid Perfectionism "pure" scores ($r_s = .29$ to $.49$, all $p_s < .001$).

4. Discussion

Our findings suggest that the Italian translation of the UPPS-P may be a reliable and valid self-report measure for psychotherapy patients that is comparable to the original version of the UPPS-P. The moderate and positive inter-correlations of the Italian UPPS-P traits replicated previous patterns of inter-correlations of the original UPPS-P traits, demonstrating that the Italian UPPS-P measures related but moderately dissociable personality dimensions. Moreover, consistent with previous work on the original UPPS-P (Smith et al., 2007), our findings demonstrated that the Italian five UPPS-P dimensions were reliable, with internal consistency coefficients being (1) even larger than the value observed for a general measure of impulsive behavior (i.e., the BIS-11 total score) and (2) fairly consistent across male and female participants. Finally, in terms of factor validity, our findings were consistent with previous work indicating that the factor structure of the UPPS-P items is in close agreement with the five-factor model of the original UPPS-P scales; in particular, goodness-of-fit

indices were acceptable for our five-factor CFA model, with all item loadings on the a priori defined factors being large and significant.

Our findings also suggest that the Italian translation of the UPPS-P may be comparable to other measures of impulsiveness. In particular, the UPPS-P scales were differentially and significantly correlated with the BIS-11 total score and explained a substantial amount of variance in the BIS-11. Similarly, the UPPS-P traits yielded specific and unique relationships with the individual facets of the PID-5 Disinhibition domain. As expected, estimates of the Negative Affectivity domain “pure” score were selectively associated with NU and estimates of the Antagonism domain “pure” score were selectively associated with SS. Although the positive association between the Psychoticism domain “pure” score and PU was unexpected, this association might stem from distribution artifact due to the fact that both psychoticism and impulsive behavior may represent “rare” conditions in psychotherapy patients. Alternately, the Psychoticism domain is a dimension of general psychosis-proneness, including psychosis-proneness in manic episodes, which might be related to PU. Collectively, in addition to demonstrating convergent validity, these findings are consistent with the postulation that UPPS-P traits represent dissociable personality dimensions leading to different manifestations of impulsive behavior (Cyders and Smith, 2007; Lynam and Whiteside, 2001),

Results of the present study also provided evidence for criterion-related validity and clinical usefulness of the Italian version of the UPPS-P. The UPPS-P scales were associated with both overall degree of personality pathology (i.e., total number of SCID-II traits) and with six dimensionally-assessed PD diagnoses. In particular, SCID-II BPD symptoms were most consistently associated with the UPPS-P scales—suggesting that individuals with prominent BPD features may display impulsive behavior because of negative emotion-based rash action (NU), lack of deliberation (LoP), sensation seeking (SS), and even positive

emotion-based rash action (PU). Moreover, NU and PU were significantly associated with Narcissistic and Histrionic PDs, respectively, suggesting that (1) narcissistic subjects may resort to impulsive behaviors (see, Pincus and Lukowitsky, 2011) to cope with intense negative emotions and (2) histrionic subjects may become behaviorally disinhibited in response to positive emotionality. Furthermore, SS was the only UPPS-P dimension that was significantly associated with the overall number of Antisocial PD symptoms, suggesting that antisocial subjects might engage in rash behaviors for excitement and stimulation. Additionally, LoP and LoPer were significantly associated with the number of Dependent PD symptoms, potentially partially explaining why these individuals tend to experience insecurity with everyday tasks (?) and to automatically rely on others. Finally, all PDs that were associated with BIS-11 were also associated with at least one UPPS-P scale, suggesting that the Italian UPPS-P scale may represent a viable alternative for assessing impulsive behaviors in a number of PDs in clinical samples. Extending on that, considering that UPPS-P facets were differentially related to PDs, the UPPS-P might actually represent a more comprehensive measure for differentially identifying impulsive features of personality disorders.

These results should be considered in the light of several limitations. The sample was composed of psychotherapy patients with limited range of Axis I diagnoses and was of moderate size, both of which could limit the generalizability of our findings to non-psychiatric and other psychiatric populations. Moreover, although psychiatric disorder diagnoses (i.e., former axis I disorder diagnoses) were assessed by expert clinical psychiatrists, we did not assess inter-rater reliability of axis I diagnoses; consequently, this might bias the associations between psychiatric disorders and UPPS-P dimensions in our study. Furthermore, we relied on self-report measures rather than behavioral measures of impulsive behavior, which might yield different results. Additionally, considering that

categorical PD diagnoses may be inadequate in capturing clinically relevant personality pathology (Widiger and Simonsen, 2005), we relied on dimensionally assessed (i.e., number of symptoms) PD diagnoses; however, study results might differ when categorical PD diagnoses are used. As a whole, these limitations strongly stress the need for further studies to replicate our findings.

Despite these limitations, our findings collectively suggest that the Italian UPPS-P represents a valid and reliable measure able to capture impulsive features that underlie different PDs and dysfunctional personality dimensions. In particular, compared to a general measure of impulsiveness (BIS-11), the UPPS-P seems to be more accurate in differentially identifying specific impulsivity features in different personality psychopathologies. Additionally, the Italian UPPS-P could also be a promising measure in both the clinical and research fields, especially considering that it is easy to administer and is composed by non-disturbing items.

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